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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MCCULLEY, MEGAN CASSANDRA

ART UNIT

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1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/559,556	Applicant(s) MOTOBE ET AL.	
	Examiner Megan McCulley	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 12 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support for the endpoint of 90% by weight of the epoxy (a) in the epoxy resin. Examples 1 and 6 contain 91.8% by weight epoxy (a), examples 2-4 contain 96% epoxy (a), and examples 5 and 7 contain 79% epoxy resin (a).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arata et al. (WO 00/37579) in view of Ongkosit (GB 2,362,037) in further view of Ekusa et al. (JP 2000-154232). As an English language translation of Arata et al., U.S. Pat.

Art Unit: 1796

6,558,797 will be referred to for the citations below. Also, as the English language translation of Ekusa et al., the computer generated translation will be referred to below.

Regarding claims 1, 11, 12, 13: Arata et al. teaches an epoxy resin composition (abstract) comprising a non-halogenated bisphenol A or F epoxy resin (col. 2 lines 25-30) blended with a halogenated epoxy resin (col. 5 lines 25-37), a phenol novolac resin, specifically VH-4170 produced by Dainippon Ink (col. 10 lines 62-67) and a curing accelerator (col. 2 line 59).

Not disclosed are the two epoxy resins in an amount of 80-100% by weight of the epoxy resin, the brominated epoxy resin in an amount of 75-97% or 90-97% by weight of the epoxy resin and a total bromine content of 18-30%. However, Ekusa et al. teaches a mixture of a brominated and non-brominated epoxy resins (abstract) the non-brominated epoxy made up of bisphenol A epoxy (para. 15) which is a reaction product of bisphenol A and epichlorohydrin. The brominated epoxy is used up to 80% per 100% epoxy (para. 8), while the non-brominated epoxy is used in an amount of 15-30% per 100% epoxy (para. 9). Therefore, if 80% of the brominated is used and 15% of the non-brominated epoxy is used, then there is 95% of the instant epoxy (a) and (b) per the total weight of the epoxy resins. There is a third epoxy resin in Ekusa et al., the novolac epoxy, which does not fall within the definition of epoxy (a) or epoxy (b) used in an amount of 10-50% by weight of the epoxy resins (para. 10). The definition of epoxy (a) in the instant claims can include a mixture **and/or** a reaction of non-brominated bisphenol A epoxy resin with tetrabromobisphenol A. Therefore, the non-brominated bisphenol A epoxy of Ekusa et al. being in an amount of 15-30% is mixed with the

Art Unit: 1796

brominated epoxy and is included in the amount of epoxy (a). The amount of epoxy (a), then is 50-90%, which overlaps with both claimed ranges. Arata et al. and Ekusa et al. are analogous art since they are both concerned with the same field of endeavor, namely epoxy resin compositions for prepregs and printed wiring boards. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the epoxy resin mixture in the disclosed amounts with the disclosed properties of Ekusa et al. with the composition of Arata et al. and would have been motivated to do so for such desirable properties as the ability to use less solvent for environmental concerns while providing sufficient heat resistance, fire retardancy, viscosity and handling ability, as evidenced by Ekusa et al. (para. 5-9).

Arata et al. also does not teach the epoxy equivalent or the ratio of the n=0 component or the bromine content. However, Ongkosit teaches a similar composition wherein the preferable epoxy is DER530A80 (page 3 2nd paragraph), which has an epoxy equivalent of 427, an n=0 component of 28% and a bromine content of 23%, making the bromine content of the epoxy resin 18.4% or less. Arata et al. and Ongkosit are analogous art since they are both concerned with the same field of endeavor, namely epoxy resin compositions for adhesives of printed wiring boards. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the epoxy of Ongkosit with the composition of Arata et al. since Arata et al. and Ongkosit teach epoxy resins used for the same purpose, namely adhesives for printed wiring boards. Therefore the epoxy of Arata et al. and the epoxy of Ongkosit are equivalents known for the same purpose. It is prima facie obvious to combine two

Art Unit: 1796

compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose (see MPEP 2144.06 I. and 2144.07). Since the epoxies are equivalents for the same purpose and there are a finite number of identified, predictable epoxies given in each reference, a person having ordinary skill in the art would have recognized that the results of the combination were predictable and would have had good reason to pursue the known options within his or her technical grasp. See MPEP 2143.

Regarding claim 2: Arata et al. teach the phenol is a reaction of bisphenol A and formaldehyde (col. 2 lines 41-45). Arata et al. uses VH-4170 produced by Dainippon Ink (col. 10 lines 62-67) which has a bifunctional component of 25%.

Regarding claims 3, 4, 7: Arata et al. teaches inorganic filler, specifically silica (col. 5 lines 55-57).

Regarding claims 5, 6, 8-10: Arata et al. does not teach the prepreg or laminate made of the composition on a glass cloth. However, Ekusa et al. teaches a varnish with the composition and a solvent (para. 13), applying to a glass cloth/fabric and pre-drying/drying to B-stage before “piling up” on copper foil/forming a laminate and further curing (para. 15). At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the prepreg of Ekusa et al. with the composition of Arata et al. and would have been motivated to do so since the glass fabric reinforces the resin to be used in a laminate.

Response to Arguments

Applicant's arguments filed 12/17/2009 have been fully considered but they are not persuasive.

A) In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

B) Applicant's argument that Ekusa et al. does not teach the ranges with sufficient specificity to anticipate the ranges is not persuasive and not germane. The rejection is an obvious-type rejection under section 103, not an anticipation-type rejection under section 102. The court decision of *Atofina v. Great Lakes Chem. Corp.* (MPEP 2131.03 II) refers to anticipation of the claims, not rendering the claims obvious. In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a prima facie case of obviousness exists (MPEP 2144.05 I).

C) Applicant's argument that the references do not teach the range of 90-97% epoxy (a) in the epoxy resin is not persuasive. The novolak epoxy resin of Ekusa et al. does not fall within the instant definition of epoxy resin (a) or (b), but the definition of epoxy resin (a) includes the possibility of a mixture with a resin that meets the definition

Art Unit: 1796

of epoxy resin (b). For example, epoxy resin (a) is a mixture of and/or a reaction of bisphenol A epoxy resin with tetrabromobisphenol A, while epoxy (b) can be the reaction product of bisphenol A and epichlorohydrin/bisphenol A epoxy. Ekusa et al. teaches a brominated epoxy in an amount of 20-80%, a bisphenol A epoxy in an amount of 15-30% and a novolac epoxy in an amount of 10-50%. Therefore, the brominated epoxy falls within the definition of epoxy (a), and the bisphenol A epoxy mixed with the brominated epoxy also falls within the definition of epoxy (a) as well as epoxy (b). There is 10-50% novolac epoxy not falling in either definition, so there is 50-90% epoxy resin (a).

D) Applicant's argument that the epoxy equivalent is not disclosed with sufficient specificity to anticipate the range is not persuasive. The rejection is an obvious-type rejection under section 103, not an anticipation-type rejection under section 102. The court decision of *Atofina v. Great Lakes Chem. Corp.* (MPEP 2131.03 II) refers to anticipation of the claims, not rendering the claims obvious. In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a prima facie case of obviousness exists (MPEP 2144.05 I).

E) Applicant's argument that the bromine content of 18-30% is not disclosed is not persuasive. Ongkosit teaches a composition wherein the preferable epoxy is DER530A80 (page 3 2nd paragraph), which has an epoxy equivalent of 427, an n=0 component of 28% and a bromine content of 23%, making the bromine content of the epoxy resin 18.4% or less, which overlaps the claimed range.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Megan McCulley whose telephone number is (571)270-3292. The examiner can normally be reached on Monday - Thursday 7:30-6:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Art Unit: 1796

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

/M. M./
Examiner, Art Unit 1796